

Patent Claims

1. A wheel bearing unit (1, 10, 16, 22) embodied as an angular contact ball bearing

- with at least two first rows (4, 12) of balls (5, 19),
- with two second rows (6, 13) of balls (5, 20), which rows are arranged parallel to the first rows (4, 12),
- with an outer ring (2, 17, 18) extending around all the balls (5, 19, 20) together radially on the outside,

a first pairing formed from one of the first rows (4, 12) and from one of the second rows (6, 13) in each case being preloaded against a second pairing formed from one of the first rows (4, 12) and from one of the second rows (6, 13) and in this connection the outer ring (2, 17, 18) having axially on each side of a radially inwardly projecting central rim (27) a first inner raceway (28) for one of the first rows and a second inner raceway (29), adjacent to the first inner raceway, for one of the second rows (6, 13).

2. The wheel bearing unit as claimed in claim 1, in which a greatest diameter of an imaginary first reference circle passing through the centers of the balls (5, 19) of the first rows (4, 12) and running around the central axis (1a, 10a, 16a, 22a) is smaller than a greatest diameter of an imaginary second reference circle passing through the centers of the

balls (5, 20) of the second rows (6, 13) and running around the central axis (1a, 10a, 16a, 22a).

3. The wheel bearing unit as claimed in claim 1, in which the balls (19) of the first row (12) have a smaller ball diameter than the balls (20) of the second row (13).

4. The wheel bearing unit as claimed in claim 1, in which the second inner raceway (29) adjoins, on the side facing away from the first inner raceway (28) axially, a diameter constriction (30), the second inner raceway (29) merging with the diameter constriction (30) and in this connection the greatest free inside diameter of the second inner raceway (29) being greater than the smallest free inside diameter on the diameter constriction (30).

5. The wheel bearing unit as claimed in claim 1, with at least one inner ring (3, 11), the inner ring (3, 11) having at least one first outer raceway (31) and one second outer raceway (32) for one of the pairings.

6. The wheel bearing arrangement as claimed in claim 5, with at least two of the inner rings (3, 11).

7. The wheel bearing unit as claimed in claim 5, with a radially outwardly projecting outer rim (33) on the inner

ring (3, 11), the outer rim (33) adjoining the second outer raceway (32) in the direction away from the first outer raceway (31) and in this connection the outer rim (33) having a maximum outer rim diameter which is greater than all other greatest outside diameters of the inner ring (3, 11) which are adjacent to the outer rim (33) toward the first outer raceway (31).

8. The wheel bearing unit as claimed in claim 7, with a radial raceway superelevation (34) axially between the first outer raceway (31) and the second outer raceway (32), the second outer raceway (32) merging with the raceway superelevation (34) in the direction of the first outer raceway (31), and the smallest outside diameter of the second outer raceway (32) being smaller than the smallest outside diameter of the raceway superelevation (34).

9. The wheel bearing unit as claimed in claim 7, in which at least the balls (5, 19, 20), the outer ring (2, 17, 18) and the inner ring (3, 11) are combined in a subassembly which holds together in itself, at least one of the inner rings (3, 11) being arranged concentrically on a flange body (7) and in this connection the inner ring (3, 11) bearing axially against the flange body (7) and being held axially means of a radially outwardly facing flanged rim (7a) pressed axially against the inner ring (3, 11) at the end.

10. The wheel bearing arrangement as claimed in claim 9, in which two inner rings (3, 11) touching one another at the end are arranged on the flange body (7) and are prestressed against one another axially by means of the flanged rim (7a) and in this connection one of the inner rings (3, 11) is pressed axially against the flange body (7).

11. The wheel bearing unit as claimed in claim 1, with pressure angles enclosed between the contact line of the angular contact ball bearing embodiment and an imaginary plane at right angles to the central axis (10a), the pressure angles being the same as one another in their absolute angular degree value from row (4) to row (6) in in each case one of the pairings.

12. The wheel bearing unit as claimed in claim 1, with pressure angles enclosed between the contact line of the angular contact ball bearing embodiment and an imaginary plane at right angles to the central axis (10a, 16a, 22a), the pressure angles differing from one another in their absolute angular degree value between the rows (12, 13) in a pairing.

13. The wheel bearing unit as claimed in claim 1, with contact lines of which the axial spacing from pairing to pairing increases toward the central axis (10a, 16a, 22a).

14. The wheel bearing unit as claimed in claim 1, which has at least one fastening element (8) for the surrounding environment of the wheel bearing unit (1, 10, 16, 22).

15. The wheel bearing unit as claimed in claim 14, in which the fastening element (8) is a radially extending flange (2a, 37).

16. The wheel bearing arrangement as claimed in claim 14, in which one of the fastening elements (8) is at least one projection designed in one piece with the outer ring (2, 18) and in this connection the projection protrudes radially outward from the outer ring (2, 18).

17. The radial bearing unit as claimed in claim 16, in which the fastening element (8) is a flange (2a) running around the central axis (1a, 16a, 22a) and provided with a number of flange holes (2b) which are spaced in relation to one another at the periphery.